

Claims

- [c1] 1.A key operated vehicle antitheft device for cooperation with a key having a key portion and a transponder, said antitheft device being comprised of a tumbler having a key receiving opening adapted to receive the key, an antenna coil for receiving the signal of the key transponder and a circuit including a receiver for sensing and recognizing the output of said transponder, said antenna coil being disposed in a spaced relation from any ferromagnetic portion of said key operated vehicle antitheft device in the direction from which the key is inserted into said key receiving opening.
- [c2] 2.A key operated vehicle antitheft device as set forth in claim 1, wherein the antenna coil, the tumbler and the circuit are formed in a common unit adapted to be mounted on the vehicle.
- [c3] 3.A key operated vehicle antitheft device as set forth in claim 2, wherein the circuit includes an immobilizer portion for preventing operation of the vehicle even if the key is turned in the tumbler in the event that the circuit does not recognizing the output of the transponder.

- [c4] 4.A key operated vehicle antitheft device as set forth in claim 2, wherein the unit includes a threaded opening for receiving a fastener for affixing the key operated vehicle antitheft device to the associated vehicle.
- [c5] 5.A key operated vehicle antitheft device as set forth in claim 4, wherein the antenna coil is disposed in a spaced relation to the threaded opening in the direction from which the key is inserted into said key receiving opening.
- [c6] 6.A key operated vehicle antitheft device as set forth in claim 1, wherein the antenna coil is disposed in a spaced relation the key receiving opening in the direction from which the key is inserted into said key receiving opening.
- [c7] 7.A key operated vehicle antitheft device as set forth in claim 2, wherein the circuit is contained in a projecting portion of a housing forming part of the unit and integrally containing the antenna coil.
- [c8] 8.A key operated vehicle antitheft device as set forth in claim 7, wherein the projecting portion of the housing carries a board on which the circuit is formed.
- [c9] 9.A key operated vehicle antitheft device as set forth in claim 8, wherein the unit includes a pair of threaded openings for receiving fasteners for affixing the key operated vehicle antitheft device to the associated vehicle,

said fastener openings being formed at the end of said projecting portion opposite from the antenna coil.

[c10] 10.A key operated vehicle antitheft device as set forth in claim 9, wherein the housing is formed from a molded resin in which the antenna coil is molded.

[c11] 11.A key operated vehicle antitheft device as set forth in claim 10, wherein the antenna coil is wound around a bobbin that is molded into the housing and which bobbin has a projecting part fitted into the circuit board to connect the bobbin to the circuit board.

[c12] 12.A key operated vehicle antitheft device as set forth in claim 11, wherein the antenna coil is electrically connected to a pair of terminals affixed to the sides of the bobbin projecting part and which terminals provide an electrical connection to the circuit on the circuit board.

[c13] 13.A key operated vehicle antitheft device as set forth in claim 9, in combination the associated vehicle which comprises a motorcycle and the key operated vehicle antitheft device is affixed to the steering mechanism of the motorcycle.

[c14] 14.The combination of claim 13, wherein the steering mechanism comprises a bracket affixed to a pair of front forks and the key operated vehicle antitheft device is af-

fixed to the upper side of the bracket by fasteners threaded into the pair of threaded openings.

[c15] 15. The combination of claim 14, wherein the key operated vehicle antitheft device actuates a locking pin for preventing steering of the forks.